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Appl. No. 09/935,735
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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A rotor in a synchronous machine~~,~~ comprising:

a superconducting field winding assembly having a coil winding and at least one winding support extending between opposite sides of the winding, wherein opposite ends of said winding support attach to the coil winding, and

a rotor core formed of a plurality of rotor core sections arranged along a rotational axis of the core, each of said core sections having a slot to receive said winding support, wherein said winding support extends between opposite slots of adjacent core sections and ~~said winding support is thermally isolated from said rotor core sections~~ a gap exists between the winding support and said opposite slots.

2. (Currently Amended) In a rotor as in claim 1 wherein said plurality of rotor core sections are ~~axially aligned with an axis of~~ coaxial with a rotational axis of said rotor core.

3. (Currently Amended) In a rotor as in claim 1 wherein said rotor core sections include opposite end core sections and at least one middle core section, wherein said end core sections are at opposite ends of the core, wherein said ends are arranged along a rotational axis of the core.

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4. (Previously Presented and Allowed) In a rotor in a synchronous machine, comprising:

a superconducting field winding assembly having a coil winding and at least one winding support extending between opposite sides of the winding, and

a rotor core formed of a plurality of rotor core sections, each of said core sections having a slot to receive said winding support, and

wherein said end core sections have a generally L-shaped cross section, and said at least one middle core section has a generally T-shaped cross section.

5. (Previously Presented and Allowed) In a rotor in a synchronous machine, comprising:

a superconducting field winding assembly having a coil winding and at least one winding support extending between opposite sides of the winding, and

a rotor core formed of a plurality of rotor core sections, each of said core sections having a slot to receive said winding support, and

wherein at least one middle core section has a cross-sectional shape with a narrow head, where the head fits between a pair of bars of said winding supports.

6. (Previously Presented and Allowed) In a rotor in a synchronous machine, comprising:

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a superconducting field winding assembly having a coil winding and at least one winding support extending between opposite sides of the winding, and

a rotor core formed of a plurality of rotor core sections, each of said core sections having a slot to receive said winding support, and

wherein the at least one rotor core section has a wide region separated from the narrow head by a slot for the winding support.

7. (Currently Amended) In a rotor as in claim 1 wherein said winding support further comprising at least one tie rod extending through said slots in the plurality of rotor core sections and securing said core sections together, wherein said tie rod is separated from the slots in the core sections by a the gap, and opposite ends of the tie rod attach to the coil winding.

8. (Original) In a rotor as in claim 1 further comprising a vacuum housing over said field coil winding.

9. (Original) In a rotor as in claim 1 wherein said core sections are iron.

10. (Original) In a rotor as in claim 1 wherein said core sections are iron forgings.

11. through 22. (Cancelled)

23. (Currently Amended) A rotor in a synchronous machine, comprising:

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a superconducting field winding assembly having a coil winding and at least one winding support extending between opposite sides of the winding, wherein opposite ends of the winding support are attached to the opposite sides of the winding, and

a rotor core formed of a plurality of rotor core sections, wherein said core sections are oriented generally perpendicularly to a rotational axis of the rotor core and each of said core sections having a slot to receive said winding support .

24. (Currently Amended) In a rotor as in claim 23 wherein ~~said plurality of rotor core sections are axially aligned coaxial with an axis of said rotor core and~~ the slot in each core section is parallel to a plane of the winding.

25. (Previously Presented) In a rotor as in claim 23 wherein said rotor core sections include opposite end core sections and at least one middle core section.

26. (Previously Presented and Allowed) In a rotor in a synchronous machine, comprising:

a superconducting field winding assembly having a coil winding and at least one winding support extending between opposite sides of the winding, wherein opposite ends of the winding support are attached to the opposite sides of the winding, and

a rotor core formed of a plurality of rotor core sections, each of said core sections having a slot to receive said winding support, and

wherein said rotor core sections include opposite end core sections and at least one middle core section, and said end core sections have a generally L-shaped cross section, and said at least one middle core section has a generally T-shaped cross section.

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27. (Previously Presented and Allowed) In a rotor in a synchronous machine, comprising:

a superconducting field winding assembly having a coil winding and at least one winding support extending between opposite sides of the winding, wherein opposite ends of the winding support are attached to the opposite sides of the winding, and

a rotor core formed of a plurality of rotor core sections, each of said core sections having a slot to receive said winding support, and

wherein said rotor core sections include opposite end core sections and at least one middle core section, and at least one middle core section has a cross-sectional shape with a narrow head, wherein the head fits between a pair of bars of said winding supports.

28. (Previously Presented and Allowed) In a rotor in a synchronous machine, comprising:

a superconducting field winding assembly having a coil winding and at least one winding support extending between opposite sides of the winding, wherein opposite ends of the winding support are attached to the opposite sides of the winding, and

a rotor core formed of a plurality of rotor core sections, each of said core sections having a slot to receive said winding support, and

wherein the at least one rotor core section has a wide region separated from the narrow head by the slot for the winding support.

29. (Currently Amended) In a rotor as in claim 23 further comprising at least one tie rod extending through said plurality of rotor core sections and securing said core

sections together and said tie rod being substantially perpendicular to said winding support, wherein opposite ends of said tie rod attach to the opposite sides of the winding.

30. (Previously Presented) In a rotor as in claim 23 further comprising a vacuum housing over said field coil winding.

31. (Previously Presented) In a rotor as in claim 23 wherein said core sections are iron.

32. (Previously Presented) In a rotor as in claim 23 wherein said core sections are iron forgings.

33. (New) In a rotor in a synchronous machine, comprising:

a superconducting field winding assembly having a coil winding and at least one winding support extending between opposite sides of the winding, wherein opposite ends of the winding support are attached to the opposite sides of the winding, and

a rotor core formed of a plurality of rotor core sections having a substantially circular perimeter, each of said core sections having a slot extending across a face of the core section to another side, and

an aperture formed between opposite slots of adjacent core sections, wherein said channel is formed around said winding support as the core sections are assembled.

34. (New) A rotor as in claim 33 further wherein said rotor core sections include opposite end core sections and at least one middle core section, and said end core sections have a generally L-shaped cross section, and said at least one middle core section has a generally T-shaped cross section.

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35. (New) A rotor as in claim 33 wherein the winding support is a rod having opposite ends each attachable one of the opposite sides of the winding.

36. (New) A rotor as in claim 33 wherein said plurality of rotor core sections are coaxial with a rotational axis of said rotor core and are substantially perpendicular to said a rotational axis.

37. (New) A rotor as in claim 33 wherein said rotor core sections include opposite end core sections and at least one middle core section, wherein said end core sections are at opposite ends of the core along a rotational axis of the core.

38. (New) A rotor in a synchronous machine comprising:

a superconducting field winding assembly having a coil winding and at least one winding support extending between opposite sides of the winding, wherein opposite ends of said winding support attach to the coil winding, and

a rotor core formed of a plurality of rotor core sections, each of said core sections having a slot to receive said winding support, wherein said core sections are oriented generally perpendicularly to a rotational axis of the rotor core and wherein said winding support extends through an aperture defined by opposite slots of adjacent core sections.

39. (New) A rotor as in claim 38 wherein said rotor core sections include opposite end core sections and at least one middle core section, and said end core sections have a generally L-shaped cross section, and said at least one middle core section has a generally T-shaped cross section.

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40. (New) A rotor as in claim 38 wherein said rotor core sections have a substantially circular perimeter.

41. (New) A rotor as in claim 38 wherein the winding support is a rod having opposite ends each attachable one of the opposite sides of the winding.

42. (New) A rotor as in claim 38 wherein said plurality of rotor core sections are coaxial with the rotational axis of said rotor core.

43. (New) A rotor as in claim 38 wherein said rotor core sections include opposite end core sections and at least one middle core section, wherein said end core sections are at opposite axial ends of the core.

44. (New) A rotor as in claim 38 further comprising a gap between the winding support and the opposite slots.

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